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10/530,646	01/11/2006	David Winn	063391-1106	7617

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EXAMINER	
HEARD, THOMAS SWEENEY	
ART UNIT	PAPER NUMBER
1654	
MAIL DATE	DELIVERY MODE
06/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,646	WINN, DAVID	
	Examiner	Art Unit	
	THOMAS S. HEARD	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) *2-6 and 9-19* is/are withdrawn from consideration.

5)☒ Claim(s) *7 and 8* is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Applicants Amendments to the claims received on 4/7/2009 is acknowledged. The text of those sections of Title 35 U.S. Code not included in the action can be found in the prior office action. Rejections or objections not addressed in this office action with respect to the previous office action mailed 12/23/2008 are hereby withdrawn.

Claims 1-19 is pending. Claims 2-6, and 9-19 remain withdrawn. Claims 1, 7 and 8 are hereby examined on the merits. Claim 7 and 8 appear free of the prior art. Claim 1 stand rejected under 112 First Paragraph and 102(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 stands rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The MPEP states that the purpose of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter later claimed by him. The courts have stated:

"To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997); In re Gostelli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, no that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572, 41 USPQ2d at 1966." Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

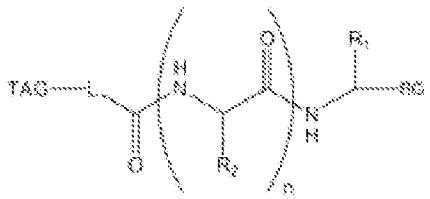
The MPEP lists factors that can be used to determine if sufficient evidence of possession has been furnished in the disclosure of the Application. These include "level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient." MPEP § 2163.

Further, for a broad generic claim, the specification must provide adequate written description to identify the genus of the claim. In Regents of the University of California v. Eli Lilly & Co. the court stated:
"A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606; In re Smythe, 480 F.2d 1376, 1383, 178 USPQ 279, 284985 (CCPA 1973) ("In other cases, particularly but not necessarily, chemical cases, where there is unpredictability in performance of certain species or subcombinations other than those specifically enumerated, one skilled in the art may be found not to have been placed in possession of a genus ...") Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

The MPEP further states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence." MPEP 2163. The MPEP does state that for a generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. MPEP 2163. If the genus has a substantial variance, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP 2163. Although the MPEP does not define what constitute a sufficient number of representative species, the courts have indicated what do not constitute a representative number of species to adequately describe a broad generic. In Gostelli, the courts determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. In re Gostelli, 872, F.2d at 1012, 10 USPQ2d at 1618.

The factors considered in the Written Description requirement are (1) level of skill and knowledge in the art, (2) partial structure, (3) physical and/or chemical properties, (4) functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the (5) method of making the claimed invention.

In the instant case, the claims are drawn to compound of the formula:



(1) Level of skill and knowledge in the art:

The level of skill to practice the art of the instantly claimed invention is high with regard to synthesis, isolation and purification, and bioassays for determining activity and efficacy.

(2) Partial structure: (3) Physical and/or chemical properties: and (4) Functional characteristics:

The partial structures are those in Claim 7 and 8. The present invention provides compositions and methods for assessing profiles of catalytically active enzymes in compositions containing a plurality of proteins. In preferred embodiments, the enzyme is a hydrolase, most preferably a cysteine protease. The methods described herein use activity based probes ("ABPs") that have an affinity moiety for directing the binding of the ABP to one or more catalytically active target enzymes, a reactive group for forming

a covalent bond at an active site of the target enzyme(s), and a TAG (e.g., a detectable label, preferably a fluorophore). One or more ABPs may be combined with a protein-containing sample under conditions for binding and reaction of the ABP(s) with target enzyme(s) that are present in the sample. The resulting products may then be used to assess the active enzyme profile of the sample, and can be correlated to the presence, amount, or activity of one or more target enzyme(s) present in the original complex protein mixture. and their properties the present invention provides compositions and methods for assessing profiles of one or more catalytically active enzymes through the hydrolysis of the instant invention to liberate the

(5) Method of making the claimed invention:

Solution phase synthesis and solid phase synthesis of the peptides.

As stated supra, the MPEP states that written description for a genus can be achieved by a representative number of species within a broad generic. It is unquestionable that Claim 1 are a broad generic, with respect to all possible compounds encompassed by the claims. The possible structural variations are limitless to any class of Markush where nearly every position is variant and a common core structure is not present.

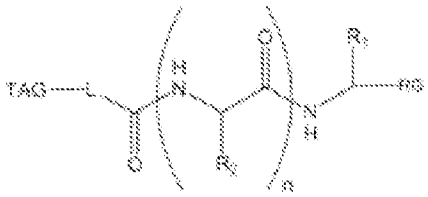
It must not be forgotten that the MPEP states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence. "MPEP § 2163.

Here, though the claims may recite some functional characteristics, the claims lack written description because there is no disclosure of a correlation between function and structure of the compounds beyond compounds disclosed in the examples in the specification. There are examples in the specification on Table 1 of the specification and those of Claim 7 and 8. While having written description for the specific species recited in the Table and claims, there is insufficient description of a common core structure that would allow one of skill in the art to practice the invention as claimed. The variable for R_1 and R_2 extend far beyond the standard amino acids known by the skilled artisan. The terms for Tag and RG (reactive group) are not defined and as such allow those positions to be nearly anything as they are only described by what they do and not what they are structurally. Fluorescent moieties are preferred for a TAG, but a TAG can be most anything that provides a unique signal that allows one to detect the TAG, such as radioisotope. A reactive group is also not described beyond something that comprises a leaving group that is lost upon formation of a covalent bond between the ABP and the target enzyme. What constitutes the target enzyme and/or the leaving group is not sufficiently described as there are a plurality of target enzymes in a cell, and how these ABP are able to distinguish among the enzymes is not correlated to the structure of the formula provided in Claim 1. The description requirement of the patent statue requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736, F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the

problems the invention will hopefully ameliorate.") Accordingly, it is deemed that the specification fails to provide adequate written description for the genus of the claims and does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention.

Applicant's Arguments

Applicants have stated that contrary to the Examiner's assertion, the claim provides a core structure comprising 1, 2, 3 or 4 amino acid units, with a defined reactive group (RG) at one end thereof, and a detectable label (TAG) at the other end thereof; as follows:



wherein n = 1, 2, 3 or 4.

. The Applicants have argued in turning to the dependent claims that the meaning of reactive group (RG) and TAG are defined and clear. If is further argued that the "*extent there may remain any issues with respect to the support for the scope of R1 and R2 in claim 1, there can be no such question about the reduced number of variations contemplated or R1 and R2 by claim 3. Since, as discussed below, no prior art has been properly applied to claim 1, it is respectfully requested that claim 3 be rejoined and the search expanded to include consideration of the variables contemplated by claim 3.*"

Response to Applicants Arguments

Applicants arguments have been carefully considered but are not deemed persuasive to overcome the rejection. The ABP as illustrated in Claim 1 can be 1 to 4 amino acids in length. Thus, for n = 1, there are 20 amino acids that are possible, but the known twenty amino acids are then linked to two broad and undefined moieties under the terms TAG and Reactive Group (RG). If one considers n = 4 for the length of the peptides, then one arrives 20^4 peptides of unrelated structure and no core structure. These 160,000 peptides coupled to two moieties defined in functional language are not correlated to function, as it is inconceivable that TAG-GGGG-RG would behave the same as TAG-FFFF-RG, TAG-CCCC-RG, TAG-AAAA-RG, or TAG-XXXX-RG. The peptides do not have a core structure that is correlated to function with the target enzyme, and the sequence needed for the 'target" enzyme, which is also not named to provide necessary structure function relationships. Since Applicants have not defined TAG or RG in the specification, merely state was is preferred, the scope of claims on be beyond being simple broad, to being essentially anything that is attached to two moieties claimed in functional language. The claim language of Claim 1 must stand on its own, and looking to the dependent claims for definitions is not sufficient to overcome the rejection. The dependent claims can further limit, but with Claim 1 being broad to the point of no common core structure that is correlated to the target enzyme it has to react with, Claim 1 remains rejected under written description.

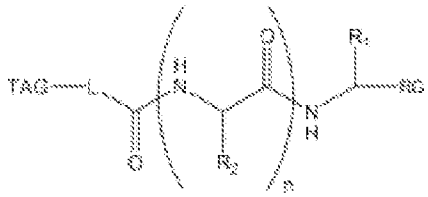
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

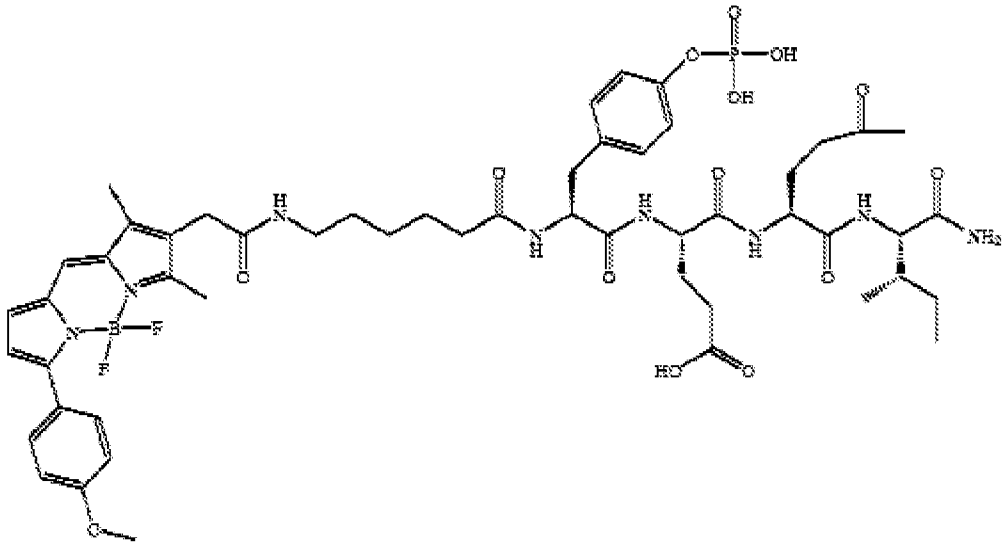
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 stands rejected under 35 U.S.C. 102(b) as being anticipated by Lynch et al, US Patent 6,207,397.

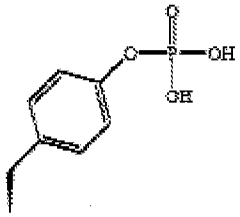
The instant invention is drawn to compounds of the formula:



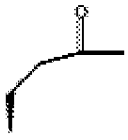
Lynch et al discloses the compound



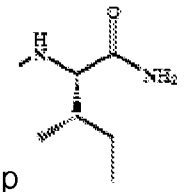
where R_2 for n = 3 amino acids contains side groups of C_1 alkyl aryl,



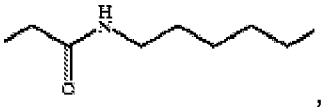

; a C_3 alkyl containing 2 heteroatoms of O, ; and a alkyl



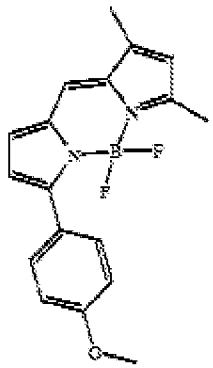
containing 1 heteroatom, . The R1 of the is a branched chain alky with a



reactive amine group .



The compounds contains an option linker, L, of , and a



florescent moiety as the TAG which is . The compounds are used in bioassay and are therefore a pharmaceutical composition. Therefore, the invention as claimed anticipated by the prior art.

Applicant's Arguments

Applicants have argued that Lynch et al. does not disclose or suggest such compounds. Specifically, Lynch et al. do not contemplate the presence of a reactive group which comprises a leaving group (LG) that is lost upon formation of a covalent bond between the ABP and a target enzyme. Instead, the "reactive amine group" of Lynch et al. is merely a free amine group which would not be lost upon reaction of the Lynch et al. compound with a target enzyme. Therefore, the Lynch et al. compound is not capable of undergoing the same chemical transformations as are possible with invention compounds.

Response to Applicants Arguments

Applicants arguments have been carefully considered but are not deemed persuasive to overcome the rejection. The limitations for TAG, L, R1, R2, and RG have been met. If follows that because these limitation have been met, the properties have also been met are inherent in the compound. As was stated supra, the definitions of TAG and RG are not limiting, and can be open to interpretation and meaning. Applicants state that the reactive amine group would not be lost on binding to the enzyme. This is not convincing because the enzyme is not stated. Neither is the consensus sequence for the amino acids that the target enzyme must recognize. Applicants are claiming a compound, and imposing limitation of function on the compound without providing specific limitations for TAG and RG to inform the artisan. Since the prior art of Lynch et al met every limitation for the structure of Claims 1, the properties are inherent and must be present. Therefore, the amine would be a leaving

group in target enzyme. Therefore, the invention as claimed is anticipated by the prior art.

Conclusion

Claims 7 and 8 appear free of the prior art. No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art contained in the reference of record can be applied in the next office action.

Applicant should specifically point out the support for any amendments made to the disclosure, including the claims (MPEP 714.02 and 2163.06). Due to the procedure outlined in MPEP § 2163.06 for interpreting claims, it is noted that other art may be applicable under 35 U.S.C. § 102 or 35 U.S.C. § 103(a) once the aforementioned issue(s) is/are addressed.

Applicant is requested to provide a list of all copending applications that set forth similar subject matter to the present claims. A copy of such copending claims is requested in response to this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Thomas S. Heard** whose telephone number is **(571) 272-2064**. The examiner can normally be reached on 9:00 a.m. to 6:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on (571) 272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas S Heard/
Examiner, Art Unit 1654

/Cecilia Tsang/
Supervisory Patent Examiner, Art Unit 1654